

ABSTRACT OF THE DISCLOSURE

A turbogenerator having a compressor configured to compress a fuel oxidizer, a combustor connected to an exhaust of the compressor and configured both to receive the fuel oxidizer and a fuel and to combust the fuel and the fuel oxidizer into a combusted gas, a fuel supplier configured to control fuel droplet sizes of the fuel supplied into the combustor to prevent flameout of the turbogenerator, a turbine connected to an exhaust of the combustor and configured to convert heat from the combusted gas into rotational energy, a motor/generator configured to convert the rotational energy into electrical energy, and a common shaft connecting the turbine, the compressor, and the motor/generator. The common shaft is configured to rotate the turbine, the compressor, and the motor/generator. The turbogenerator is controlled by a process of compressing the fuel oxidizer, supplying to the fuel oxidizer a fuel at a controllable fuel droplet size to prevent flameout of the turbogenerator, combusting the fuel and the fuel oxidizer to produce combusted gases whose expulsion through a turbine generates turbine rotational energy, applying a rotational resistance to the turbine via the motor/generator, and controlling a rotational speed of the turbogenerator by varying a degree of the compressing, supplying, combusting, and applying steps.